

FOX 3G HD-SDI

FIBER OPTIC EXTENDER FOR MULTI-RATE SDI

- Transmit SDI, HD-SDI, and 3G-SDI signals over a single fiber
- All digital technology for high performance signal transmission
- Input equalization and reclocking on buffered outputs
- Immunity to SDI and HD-SDI pathological signal patterns - FOX 3G HD-SDI P SM model
- Dual buffered outputs
- Daisy-chain capability
- Real-time status LED indicators for troubleshooting and monitoring
- 850 nm multimode and 1310 nm singlemode models available



The Extron FOX 3G HD-SDI Fiber Optic Extender is a transceiver for long haul transmission of SDI, HD-SDI, and 3G-SDI signals over a single fiber. Engineered for reliability and exceptional high resolution image performance, it uses Extron's exclusive all digital technology, and also includes a host of features for enhancing A/V system integration.



Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

DESCRIPTION

The Extron FOX 3G HD-SDI Fiber Optic Extender enables long haul transmission of multi-rate SDI video, with embedded audio and metadata, over a single fiber. Engineered for reliability and exceptional high resolution image performance, it uses Extron's exclusive all digital technology to transmit multi-rate SDI signals up to 2.97 Gbps including SDI, HD-SDI, and 3G-SDI. To optimize SDI signal transmission to and from the FOX 3G HD-SDI, input signals are automatically equalized, and output signals are reclocked. The FOX 3G HD-SDI can function as a transmitter and a receiver in various user-configurable modes. It is ideally suited for use in digital signage, broadcast and production, rental and staging, and medical applications.

The FOX 3G HD-SDI is designed for long distance transmission of high resolution content with the highest quality. Because transmission of content is inherently secure and immune to outside interference, fiber applications are favored in government, military, and medical environments. The FOX 3G HD-SDI features industry standard LC-type connectivity.

The FOX 3G HD-SDI MM supports multimode fiber at 850 nm, which is typically used within buildings or facilities with moderate-range transmission distances up to 1 km (0.62 miles). The FOX 3G HD-SDI SM supports singlemode as well as multimode fiber at 1310 nm. Singlemode fiber offers long-range transmission capability over extreme distances of up to 30 km (18.75 miles). It is used in very large facilities such as airports and stadiums, and for connecting over very long distances between facilities such as university campuses.

The FOX 3G HD-SDI automatically recognizes and transmits SDI, HD-SDI, and 3G-SDI signals, and is compliant with SMPTE 259M, 292M, 424M, and ITU digital video standards. Because the FOX 3G HD-SDI is a transceiver, multi-rate SDI signals can be simultaneously transmitted and received between a pair of FOX 3G HD-SDI units. It is also configurable as a dedicated transmitter with outputs for previewing on a local monitor, and as a dedicated receiver with the capability to daisy-chain multiple units for supporting displays at multiple locations.

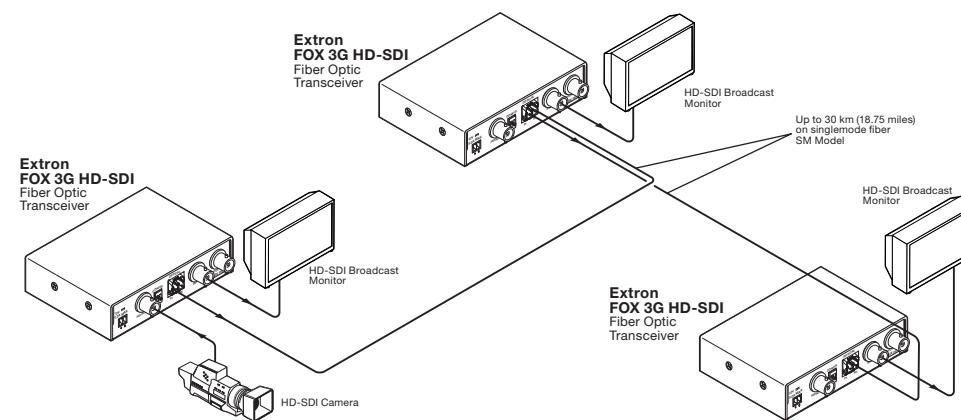
NOTE: The FOX 3G HD-SDI is not compatible with the FOX/FOX BOX or Fiber Optic Extenders or the FOX 500 DA6 Fiber Optic Transmitter/Distribution Amplifier.

Daisy-Chain Capability

The FOX 3G HD-SDI offers several user-configurable modes, including a dedicated receiver mode that allows for daisy-chaining between FOX 3G HD-SDI units, so that displays at multiple locations can be served from a single transmitter location.

FEATURES

- **Extends SDI, HD-SDI, and 3G-SDI signals very long distances over a single fiber** – The FOX 3G HD-SDI supports multi-rate SDI at rates up to 2.97 Gbps, and complies with SMPTE 259M, 292M, 424M, and ITU digital video standards.
- **Passes embedded audio, ancillary ID and metadata information, and SD/HD-SDTI digital video signals** – Passes all data allowed within published SMPTE and ITU digital video standards, including embedded audio, ancillary ID and metadata information, and SDTI (SMPTE 305M) and HD-SDTI (SMPTE 348M) digital video signals.
- **Input equalization and reclocking on buffered outputs** – The FOX 3G HD-SDI automatically equalizes incoming multi-rate SDI signals, and reshapes and restores signals on its buffered outputs.
- **Immunity to SDI and HD-SDI pathological signal patterns - FOX 3G HD-SDI P SM** – The FOX 3G HD-SDI P SM model adds immunity to pathological signals, including test patterns defined by SMPTE RP 178 and SMPTE RP 198 for SD-SDI, HD-SDI and 3G-SDI.
- **Dual buffered outputs** – Provide additional system capability. When the FOX 3G HD-SDI is configured as a dedicated transmitter, the outputs can also be used for previewing on a local monitor.
- **Daisy-chain capability** – When configured as a dedicated receiver, multiple FOX 3G HD-SDI units can be daisy-chained so that displays in multiple locations can be served from a single transmitter location.
- **Multi-rate SDI transceiver sends to and receives from a second FOX 3G HD-SDI unit over fiber in bidirectional transceiver mode**
- **1" (2.5 cm) high, quarter rack width metal enclosure** – With a low profile enclosure, the FOX 3G HD-SDI can be conveniently and discreetly installed in a variety of locations.



SPECIFICATIONS

Extron® Electronics

NOTE: The FOX 3G HD-SDI is a transceiver that can function as a transmitter and/or as a receiver. Two units are required for a transmitter-receiver system with one fiber optic cable linking the two units. The FOX 3G HD-SDI is available in singlemode or multimode versions.

NOTE: These transceivers are class 1 laser products. They meet the safety regulations of IEC-60825, FDA 21, CFR 1040.10, and FDA 21 CFR 1040.11.

NOTE: FOX 3G HD-SDI P SM transceivers are immune to pathological signals only when P model units are used for both transmitter and receiver with no other equipment between the two units. If the signal is routed through a Fiber Matrix, FOX 4G DA8, or FOX 4G SW8, the system does not provide immunity.

OPTICAL FIBER INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER

Number/type	1 fiber optic
Connectors	1 LC connector
Operating distance	
Singlemode	30 km (18.75 miles) with singlemode (SM) cables with a FOX 3G HD-SDI SM
Multimode	500 m (1640') with 62.5 μ m multimode (MM) cables with a FOX 3G HD-SDI MM 1 km (3280') with 50 μ m multimode (MM) cables with a FOX 3G HD-SDI MM 2 km (6561') with 50 μ m 2000 MHz bandwidth laser optimized multimode (MM) cables with a FOX 3G HD-SDI MM
NOTE:	Operating distance is approximate. These are typical maximum distances that may vary depending on factors such as fiber type, fiber bandwidth, connector splicing, losses, modal or chromatic dispersion, environmental factors, and kinks.
Nominal peak wavelength	850 nm for FOX 3G HD-SDI MM; 1310 nm for FOX 3G HD-SDI SM
Transmission power	
Singlemode	-5 dBm, typical
Multimode	-5 dBm, typical
Maximum receiver sensitivity	
Singlemode	-18 dBm, typical
Multimode	-12 dBm, typical
Optical loss budget	
Singlemode	13 dB, maximum
Multimode	7 dB, maximum

VIDEO

Signal type	HD-SDI, SDI, and 3G-SDI digital video signals
Gain	Unity
Resolution	8 or 10 bits, automatic
Data rates	270 Mbps, 1.485 Gbps, 2.970 Gbps
Operation standards	SMPTE 259M-C, SMPTE 292M, SMPTE 424M, ITU-R BT.601, ITU-R BT.1120
Auto data rate lock	Yes

VIDEO INPUT— TRANSMITTER

Number/signal type	1 single link SDI, HD-SDI, or 3G-SDI digital component video
Connectors	1 female BNC
Data rates	19 Mbps to 2.97 Gbps
Nominal level	0.8 Vp-p
Minimum/maximum levels	0.5 V to 1 Vp-p with no offset
Impedance	75 ohms
Return loss	<15 dB @ 5 MHz to 2.97 GHz
DC offset (max. allowable)	5 V
Input coupling	AC
Input cable equalization	Automatic for up to -30 dB of cable loss
HD-SDI	120 m (400') using Extron RG6 cable 90 m (300') using Extron RG59 cable

SDI..... 150 m (500') using Extron RG6 cable
120 m (400') using Extron RG59 cable

NOTE: The transmission distance varies depending on the signal resolution and on the type of cable, graphic card, and display used in the system.

VIDEO OUTPUT— RECEIVER

Number/signal type	2 single link SDI, HD-SDI, or 3G-SDI digital component video
Connectors	2 female BNC
Re-clocking	Automatic for 270 Mbps, 1.485 Gbps, 2.97 Gbps, or bypassed for unrecognized rates
Nominal level	0.8 Vp-p
Minimum/maximum levels	0.5 V to 1.0 Vp-p
Impedance	75 ohms
Return loss	<-25 dB @ 100 MHz
DC offset	\pm 5 mV with input at 0 offset

GENERAL

External power supply	100 VAC to 240 VAC, 50-60 Hz, 6 watts, external; to 12 VDC, 1 A, regulated
Power input requirements	12 VDC, 0.3 A
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, no vents
Mounting	

Rack mount	Yes, with optional rack shelf kit
Furniture mount	Yes with optional through-desk or under-desk mounting kit
Pole mount	Yes, with optional pole mounting kit
Enclosure type	Metal
Enclosure dimensions	1.0" H x 4.3" W x 3.0" D (quarter rack wide) (2.5 cm H x 10.9 cm W x 7.6 cm D) (Depth excludes connectors.)

Product weight..... 0.5 lb (0.3 kg) per each unit

Shipping weight..... 3 lbs (2 kg) per each unit

Vibration..... ISTA 1A in carton (International Safe Transit Association)

Regulatory compliance

Safety..... CE, c-UL, FDA Class 1, UL
EMI/EMC..... CE, C-tick, FCC Class A, ICES, VCCI

MTBF..... 30,000 hours

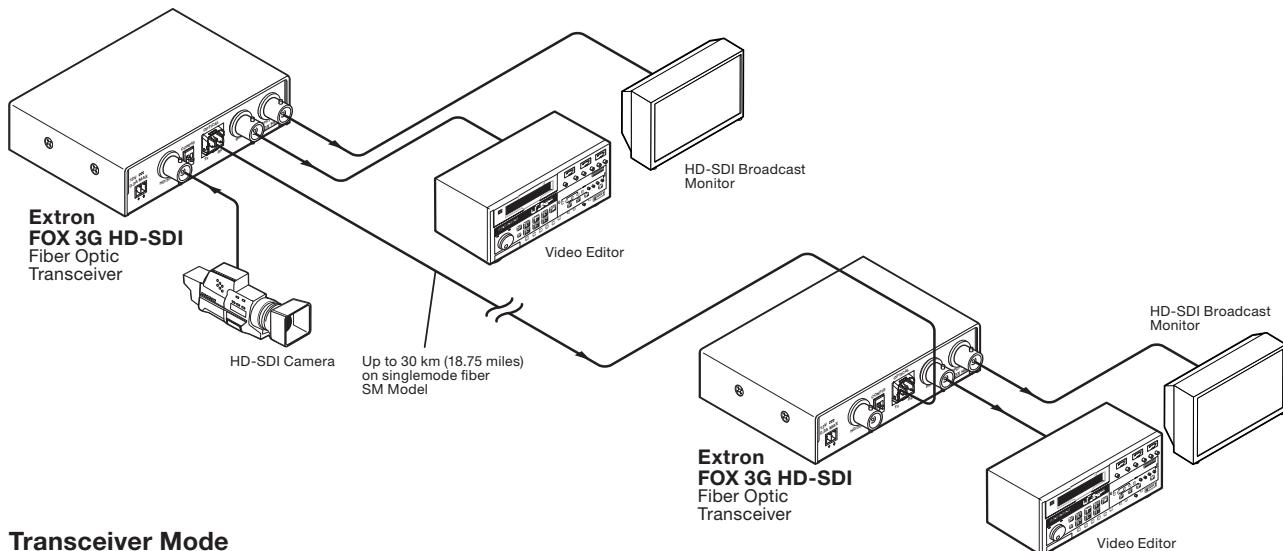
Warranty..... 3 years parts and labor

NOTE: All nominal levels are at \pm 10%.

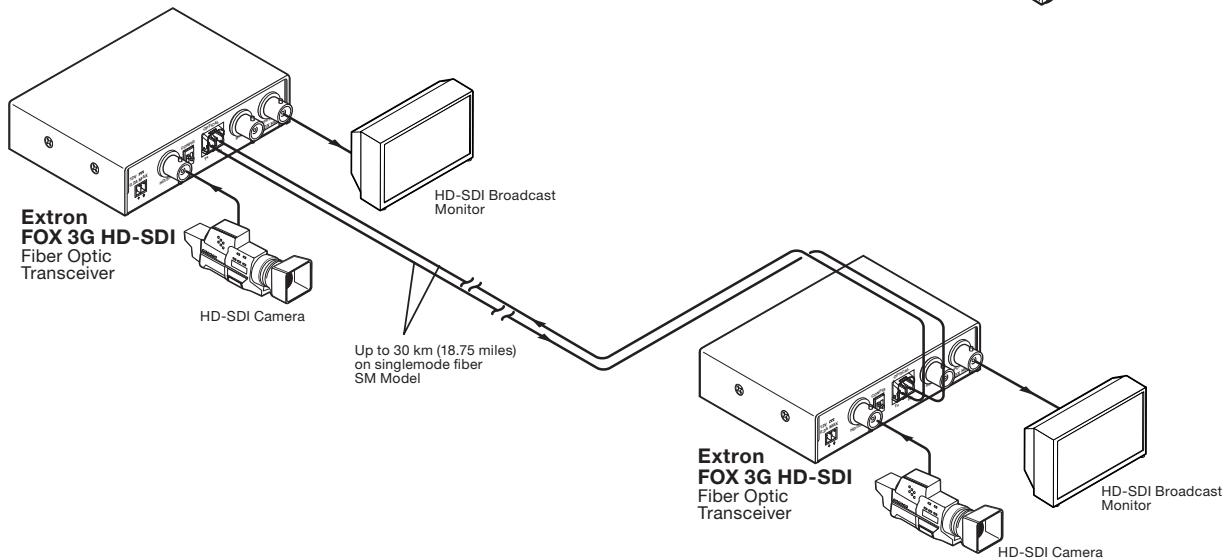
Model	Version Description	Part number
FOX 3G HD-SDI MM		Multimode,
Qty. 1	60-900-01	
FOX 3G HD-SDI SM Singlemode, Qty. 1		60-901-01
FOX 3G HD-SDI P SM		Singlemode,
Pathological Comp., Qty. 1		60-1056-02

APPLICATION DIAGRAMS

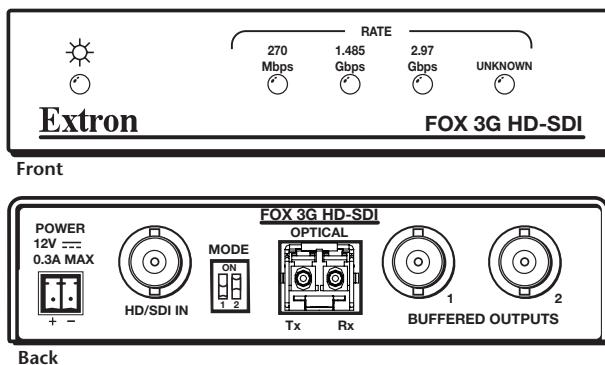
Transmitter/Receiver Mode



Transceiver Mode



PANEL DRAWINGS



Extron USA - West
Headquarters
+800.633.9876
Inside USA / Canada Only
+1.714.491.1500
+1.714.491.1517 FAX

Extron USA - East
+800.633.9876
Inside USA / Canada Only
+1.919.863.1794
+1.919.863.1797 FAX

Extron Europe
+800.3987.6673
Inside Europe Only
+31.33.453.4040
+31.33.453.4050 FAX

Extron Middle East
+971.4.2991800
+971.4.2991880 FAX

Extron Asia
+800.7339.8766
Inside Asia Only
+65.6383.4400
+65.6383.4664 FAX

Extron Japan
+81.3.3511.7655
+81.3.3511.7656 FAX

Extron China
+400.883.1568
Inside China Only
+86.21.3760.1568
+86.21.3760.1566 FAX